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# Imaging

## EARLY ACQUISITION WITH GATED HIGH SPEED $^{99m}$TC-SESTAMIBI SPECT IN ASSESSMENT OF LEFT VENTRICULAR EJECTION FRACTION RESERVE

Poster Contributions
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Authors: *Yafim Brodov, Yuka Otaki, Mathews Fish, Mark Lemley, Jim Gerlach, Daniel Berman, Guido Germano, Piotr Slomka, Cedars Sinai Medical Center, Los Angeles, CA, USA*

**Background:** Left ventricular ejection fraction (LVEF) reserve (LVEFR) calculated as a difference between stress and rest LVEF was demonstrated with PET as a useful marker in evaluation of coronary artery disease severity. The aim was to evaluate the potential utility of LVEFR assessment from early acquisitions of gated 99mTc-sestamibi regadenoson rest/stress solid-state high-speed SPECT (HS-SPECT).

**Methods:** Twenty four consecutive patients, mean age 64±15, 58% male, undergoing same-day rest (9.5 mCi)/stress (37 mCi) 99mTc-sestamibi HS-SPECT were enrolled. Stress scan was performed with injection of 0.4 mg injection of regadenoson. Stress imaging began immediately after 99mTc injection, with five 2-min gated acquisitions, followed by 4-min supine and upright imaging. Automated software with grouped processing for increased serial reproducibility was used to quantify LVEF and total perfusion deficit (TPD) for multiple stress and reference rest scans. Severe ischemia was defined as stress minus rest TPD ≥10 %.

**Results:** LVEFR obtained 4 min after regadenoson bolus demonstrated the best concordance with severe ischemia (-1.9±1.5% in patients with severe ischemia vs., 0.8±0.4% without, P<0.02). The trend for lower LVEFR in patients with severe ischemic TPD at other time points was not significant (Figure).

**Conclusions:** LVEFR obtained from early HS-SPECT demonstrated concordance with presence of severe ischemia and could provide a useful clinical tool for detection of high risk CAD with SPECT.